

CLAIMS

1. A dental bleaching device, comprising:

a barrier layer;

a dental bleaching composition, positioned relative to said barrier layer so as to contact a person's teeth during use, comprising at least one dental bleaching agent; and

a protective adhesive composition, positioned relative to said barrier layer and so as to shield a user's gums from said bleaching composition during use, comprising at least one tissue adhesion agent that includes at least one hydrophilic polymer.

2. A dental bleaching device as defined in claim 1, said barrier layer being flexible so as to readily conform to the shape of a person's teeth during use.

3. A dental bleaching device as defined in claim 1, said barrier layer comprising at least one of wax, metal foil, paraffin, ethylene-vinyl acetate copolymer, ethylene-vinyl alcohol copolymer, polycaprolactone, polyolefin, polyethylene, high density polyethylene, low density polyethylene, ultra-low density polyethylene, polypropylene, polytetrafluoroethylene, polyester, polycarbonate, polyurethane, polyamide, or polyesteramide.

4. A dental bleaching device as defined in claim 1, said barrier layer having a cross-sectional thickness in a range of about 0.025 mm to about 1.5 mm.

5. A dental bleaching device as defined in claim 1, said barrier layer having a cross-sectional thickness in a range of about 0.05 mm to about 1 mm.

6. A dental bleaching device as defined in claim 1, said barrier layer having a tray-like configuration comprising a least two sidewalls that define a trough within which the dental bleaching composition and protective adhesive composition reside prior to use.

7. A dental bleaching device as defined in claim 6, said barrier layer having a horse-shoe configuration prior to use so as to approximate the curvature of a person's dental arch.

8. A dental bleaching device as defined in claim 6, at least a portion of said trough having a cross section that is approximately U-shaped, V-shaped, L-shaped, rectangular, or trapezoidal.

9. A dental bleaching device as defined in claim 6, said barrier layer being sufficiently thin and flexible so as to be unable to maintain said tray-like configuration absent external support, the dental bleaching device further comprising a removable exoskeleton that maintains said barrier layer in said tray-like configuration prior to use.

10. A dental bleaching device as defined in claim 1, said barrier layer comprising a strip or patch prior to use.

11. A dental bleaching device as defined in claim 1, said barrier layer designed so as to approximately terminate at or near a person's gingival margin during use.

12. A dental bleaching device as defined in claim 1, said barrier layer designed so as to overlap a person's gingival margin during use.

13. A dental bleaching device as defined in claim 1, said dental bleaching composition further comprising a liquid or gel carrier so as to yield a sticky and viscous bleaching composition.

14. A dental bleaching device as defined in claim 1, said dental bleaching composition being substantially solid prior to use and becoming more adhesive to teeth or gums when moistened with saliva or water.

15. A dental bleaching device as defined in claim 1, said dental bleaching composition comprising a tissue adhesion agent that is at least one of polyvinyl pyrrolidone (PVP), carboxypolymethylene, polyethylene oxide, polyacrylic acid, copolymer of polyacrylic acid, polyacrylate, polyacrylamide, copolymer of polyacrylic acid and polyacrylamide, PVP-vinyl acetate copolymer, carboxymethylcellulose, carboxypropylcellulose, polysaccharide gum, or protein.

16. A dental bleaching device as defined in claim 1, said dental bleaching composition further comprising at least one member selected from the group comprising dental desensitizing agents, stabilizing agents, remineralizing agent, antimicrobial agents, antiplaque agents, and anti-tartar agents.

17. A dental bleaching device as defined in claim 1, said protective adhesive composition comprising a liquid or gel carrier so as to yield a sticky and viscous protective adhesive composition.

18. A dental bleaching device as defined in claim 1, said protective adhesive composition being substantially solid prior to use and becoming more adhesive to teeth when moistened with saliva or water.

19. A dental bleaching device as defined in claim 1, said hydrophilic polymer within said protective adhesive composition comprising at least one of polyvinyl pyrrolidone (PVP), carboxypolymethylene, polyethylene oxide, polyacrylic acid, copolymer of polyacrylic acid, polyacrylate, polyacrylamide, copolymer of polyacrylic acid and polyacrylamide, PVP-vinyl acetate copolymer, carboxymethylcellulose, carboxypropylcellulose, polysaccharide gum, or protein.

20. A dental bleaching device as defined in claim 1, said protective adhesive composition further comprising at least one member selected from the group comprising dental desensitizing agents, remineralizing agent, antimicrobial agents, preservatives, antiplaque agents, anti-tartar agents, gingival soothing agents, anesthetics, antioxidants, flavorants, mouth freshening agents, detergents, and colorants.

21. A dental bleaching device as defined in claim 1, said protective adhesive composition further comprising a dental bleaching agent in a lower concentration than said dental bleaching gel.

22. A dental bleaching device as defined in claim 20, said protective adhesive composition comprising less than 10% by weight of said dental bleaching agent, and said bleaching composition comprising at least 10% by weight of said dental bleaching agent.

23. A dental bleaching device as defined in claim 1, further comprising a sealed package within which the dental bleaching device is sealed prior to use.

24. A dental bleaching device as defined in claim 1, further comprising a removable exoskeleton that maintains said barrier layer in a desired shape prior to use.

25. A dental bleaching device as defined in claim 1, said removable exoskeleton maintaining said barrier layer in the desired shape of a dental tray prior to use.

26. A kit for use in bleaching a person's teeth comprising a plurality of said dental bleaching devices according to claim 1.

27. A method for bleaching a person's teeth comprising obtaining dental bleaching device according to claim 1 and placing it over at least a portion of the person's teeth for a desired time period.

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28. A dental bleaching device, comprising:

a dental tray having flexibility so as to readily conform to a person's teeth during use;

a dental bleaching gel, positioned relative to said dental tray so as to contact a person's teeth during use, comprising at least one dental bleaching agent, at least one thickening agent, and a liquid or gel carrier; and

a protective adhesive composition, positioned relative to said dental tray so as to shield a person's soft tissues from said bleaching gel during use, comprising at least one tissue adhesion agent.

29. A dental bleaching device as defined in claim 28, said dental tray comprising a barrier layer material that is sufficiently thin and flexible so as to be unable to maintain its shape as a dental tray absent external support, the dental bleaching device further comprising a removable exoskeleton that maintains said barrier layer material in the shape of said dental tray prior to use.

30. A dental bleaching device as defined in claim 28, said dental bleaching gel being sticky and viscous.

31. A dental bleaching device as defined in claim 28, said tissue adhesion agent within said protective adhesive composition comprising at least one hydrophilic polymer.

32. A dental bleaching device as defined in claim 28, said protective adhesive composition comprising a sticky and viscous gel.

33. A dental bleaching device as defined in claim 28, said protective adhesive composition being substantially solid prior to use and becoming more adhesive to teeth or gums when moistened with saliva or water.

34. A dental bleaching device as defined in claim 28, said protective adhesive composition further comprising a dental bleaching agent in an amount that is less than the amount of dental bleaching agent in said dental bleaching gel.

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35. A dental bleaching device, comprising:

a barrier layer in the form of a strip or patch having a flexibility so as to readily conform to a person's teeth during use;

a dental bleaching gel, positioned relative to said barrier layer so as to contact a person's teeth during use, comprising at least one dental bleaching agent, at least one thickening agent, and a liquid or gel carrier; and

a protective adhesive composition, positioned relative to said barrier layer so as to shield a person's soft tissues from said bleaching gel during use, comprising at least one tissue adhesion agent.

36. A dental bleaching device as defined in claim 35, said dental bleaching gel being sticky and viscous.

37. A dental bleaching device as defined in claim 35, said tissue adhesion agent within said protective adhesive composition comprising at least one hydrophilic polymer.

38. A dental bleaching device as defined in claim 35, said protective adhesive composition comprising a sticky and viscous gel.

39. A dental bleaching device as defined in claim 35, said protective adhesive composition being substantially solid prior to use and becoming more adhesive to teeth or gums when moistened with saliva or water.

40. A dental bleaching device as defined in claim 35, said protective adhesive composition further comprising a dental bleaching agent in an amount that is less than the amount of dental bleaching agent in said dental bleaching gel.

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